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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In re

Amendment of the Commission's
Rules to Establish a Single
AM Radio Stereophonic
Transmitting Equipment Standard

ET Docket
No. 92-298

A REVIEW OF MOTOROLA'S DEMONSTRATION TAPE

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September 7, 1993

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A REVIEW OF THE "MOTOROLA TAPE"

DEMONSTRATING KAHN ISB/C-QUAM vs C-QUAM

Results on the Motorola-supplied tape purportedly showing problems of the Kahn ISB system as decoded on a C-Quam receiver are totally inconsistent with real world experiences of such broadcasts on WAQX-AM and WSYR-AM, both Syracuse, New York in 1987. Our experience is that the use of the 25 hz pilot tone with the Kahn exciter did NOT introduce any intermodulation distortion. Use of the 25 hz pilot was discontinued because it was noted the Motorola-type receivers innately reduce coverage area by destroying reliable fringe reception.

SETUP INDUCED AUDIO FLAW POTENTIAL

The results recorded on the Motorola tape seem to indicate an unknown flaw in the equipment or methodology of their "listening experiences". The WSYR and WAQX tests displayed no audible popping or receiver overload as heard on the first cut of the Motorola-supplied tape, "Wonderful World" by Louis Armstrong. Note that in 1987, WSYR-AM was broadcasting a mixture of high quality recent recordings with an equal number of songs from the 1960s and 1970s, an era when instrumentation was even more separated, frequently ISOLATED in one channel with vocals in the other! In no instance was total (or partial) break up noted. There is but one logical conclusion to explain the difference

addition, each Commission member may, at his or her own discretion monitor a Kahn ISB system with a C-Quam type decoder by simply using a SONY SRF-A1 multi-system AM stereo receiver. These units are still available from licensee Craig Fox, WAQX-AM, Syracuse (315) 468-0908. Never, while using one of these or other multi-system receivers, did we hear peak phase overload distortion or a noticeable increase in IM distortion. I can unequivocally state that there were no "peak phase- induced overloads" nor any noticeable increase in IM distortion on WSYR or WAQX when using a 25 hz pilot tone on a Kahn ISB stereo AM exciter.

STEREO IMAGING: PUBLIC UNCONCERN AND FCC ABANDONMENT

The issue of stereo imaging is as much a non-issue today as it was during the experimental broadcasts of WAQX and WSYR. The sad fact is that the American people do not understand stereo, imaging, and high fidelity. This was recently demonstrated in the Tampa, Florida area when CBS' WYMF-FM transmitted monophonic talk radio for a week in August of 1993. Listeners called to say how much better the (Monophonic) talk programming sounded in stereo! This was simply because a stereo pilot light was lighted, and because HIGH FIDELITY, which the FCC refuses to require for AM receivers, enhanced listening enjoyment. There was no stereo. Demonstrations of Kahn ISB listened to on the C-Quam mode of Sony radios, the fact remains: some stereo imaging, stereo depth, sounds better than NO stereo depth, there is no noticeable

increase in IM, and no overload popping. Further, the FCC has decreed a defacto abandonment of concern with proper stereo imaging by authorizing at all a phase dependent AM stereo system on an inherently phase-unstable medium: the AM broadcast band. The platform motion generated by a phase dependent stereo radio station with a co-channel transmitter is NOT "Image stable" and will never be; the best a C-Quam receiver can do is reduce its' reception to monophonic; hardly an improvement over a pure monophonic transmission, and since this mode change can be picket-fence triggered by signal reflections from a station' own transmitter due to power lines and other reflections, the FCC would be self-contradictory if it claimed it is concerned with stereo image stability on the AM band! Indeed on AM as well as FM, much audio processing operates left/right channel independently, in fact continually shifting the stereo image left and right during every musical selection per the amplitude of the musical information in each channel. Since this type of audio processing has gone without punishment, the FCC would be very hypocritical by maintaining it cares of stereo imaging.

In conclusion, the Motorola FCC "TAPE" submission does not conform to "REAL WORLD" field experience.



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between two problem-free REAL WORLD broadcast station experiences and the subjective Motorola-produced, Motorola described "peak overload" demonstration tape. Lacking any scientific tests that could substantiate the mysterious appearance of (Motorola described) "phase modulation peak- induced excessive distortion" in the Motorola "listening experiences" displayed on the tape, the most likely problem with the results therein: simple improper setup of the Kahn STR-84 ISB AM Stereo Exciter!

LACK OF SCIENTIFIC TONE TESTS, MEASUREMENTS, AND CONTROLS

It is important to state at this time that such an unscientific listening demonstration cannot be used as justification for any federal orders or rulemaking. Indeed there are scientific tests that may be conducted to answer the questions raised. Does not the Federal Communications Commission question the absence of distortion tests, with scientific controls on all exciters? It is very dangerous that there are no measurements of bandwidth, distortion, IM, or actual stereo image phase shifts with single tones: just subjective, unquantified and unqualified music demonstrations on equipment of unknown status. Tests conducted with SINGLE TONES could even quantify the stereo image shift, which is not a matter of contention. It is very curious that MOTOROLA DID NOT conduct any single tone tests that would have allowed distortion measurements to prove or disprove their claims. Is it possible that there is a hidden reason for NOT conducting single tone tests as outlined in the Federal Communications

Commission' own Rules and Regulations which, by the Communications Act of 1934, the FCC is charged with enforcing? Results of spectrum occupancy and distortion measurements of single tone tests utilizing scientific procedures, protocols, and controls on both systems of stereo exciters would be a reference for all further distortion and IM claims.

DISTORTION CLAIMS BASED ON MOTOROLAS' "LISTENING EXPERIENCES"

It is apparent that there is a large quantity of distortion induced on the Motorola-supplied "listening experience" tape recording during the ISB/C-Quam musical cuts. While not belaboring a point, I question why the distortion was not actually measured with single tones, and referenced. I must again wonder of the reasons for subjective analysis. If indeed subjective analysis is the acceptable test of the 1990s, then I must again call to the attention of the FCC the experiences of WAQX-AM and WSYR-AM. WSYR, owned by KATZ/Newcity, would NEVER have permitted the 25 hz tone used had it actually resulted in such overload distortion. There were no complaints from staff members, audience, or area engineers listening to station quality. Indeed, the sole reason the experiment was dubbed a failure was the loss of coverage radius that occurs whenever a C-Quam decoder is triggered by a 25 hz pilot tone, be it from Kahn ISB or Motorola C-Quam exciters. It was decided service to the intended coverage area would be of prime importance. In